White House, EPA Agree on Leaded Gas

The White House and the Environmental Protection Agency (EPA) reached an agreement on 18 August to go ahead with a controversial EPA plan for controlling lead in gasoline. Lead is a cheap octane booster, but also a toxic agent that poses a specific threat to children's health.

The Office of Management and Budget (OMB) at the White House at first resisted the EPA's proposal, asking the agency to delay action until 31 December and to consider revising its proposal (*Science*, 27 August, p. 807). The OMB now agrees that the lead controls should go into effect before the general election this fall.

The compromise essentially does two things: it endorses the new limit the EPA would like to impose on gasoline producers, and at the same time grants a 1-month reprieve to certain companies—recently launched gasoline blenders—that would have been forced to meet an early deadline on 1 October. According to EPA officials, blenders and virtually all other refiners will have to meet a uniform standard on 1 November. The OMB claims that the compromise is an improvement over the original plan, which would have required blenders to meet the standard before it was applied to the rest of the industry.

EPA officials say the final rule, to appear in the *Federal Register* on 26 August, sets a maximum limit of 1.1 grams of lead per gallon, the average amount large refiners are now permitted to use. Only about 74 companies will be excused from this standard. These are the smallest refiners (10,000 barrels of production daily), which were operating before October 1976, when Congress required the EPA to begin its crackdown on leaded gasoline. These companies will be allowed to add 2.5 grams of lead per gallon, slightly less than they are allowed now.

The EPA estimates that this program could reduce the amount of lead used in gasoline by 31 percent below the level set by current rules over the next 8 years, provided the demand for leaded gasoline continues to decline. Environmental groups generally support the EPA's strategy, although they warn that its success depends on the wishes of the marketplace. There is no guarantee therefore that the demand for leaded gas will fall.

One immediate effect of the EPA's proposal is that it will close two loopholes, one that allows imported gasoline to escape regulation altogether, and another that allows new companies to enter the business as blenders and take advantage of the special exemption given to small refiners. Cutting off these exemptions, the EPA believes, will quickly reduce the amount of lead used in gasoline.

—*Eliot Marshall*

Fields Medals Announced

On 8 August, the International Congress of Mathematicians announced the award of the Fields medals—mathematics' most prestigious award—to three young researchers. The recipients are Shing Tung Yau of Princeton's Institute for Advanced Studies, William Thurston of Princeton University, and Alain Connes of the Centre Nationale de la Recherche Scientifique in Paris.

Fields medals are presented at the International Congress of Mathematicians every 4 years to mathematicians under age 40. But this year, the congress, which was to be held in Warsaw, had to be postponed because of the political situation in Poland. Therefore, the winners of the Fields medals will not receive the prize until the congress is rescheduled. The international congress hopes to hold the meeting next year in Poland.

Yau, 33, is known for his contributions to the solution of the Calabi conjecture (*Science*, 17 June 1977, p. 1308) and the Smith conjecture—and for his recent work applying the methods of geometry to a problem in general relativity. It is known that the energy of an isolated system must be positive, but it has been unclear whether the mass must also be positive. Yau showed that it must.

Thurston, a 36-year-old topologist, works on the relationship between three-dimensional differential geometry and three-dimensional topology. In two dimensions mathematicians have developed three sorts of geome-tries—Euclidean, spherical, and hyperbolic. In three dimensions there are eight geometries. Thurston has been trying to show that every three-dimensional space, or manifold, can be modeled with one of these geometries. So far, he has made substantial progress, showing that many manifolds can be modeled with a three-dimensional analog of two-dimensional hyperbolic geometry.

The third winner of a Fields medal, Connes, who was born in 1947, is known for two major pieces of work. First, he solved some of the most outstanding problems in operator theory, which was originally developed in the 1930's by Jon von Neumann and F. J. Murray in their attempt to put quantum theory into a mathematical framework. Connes has published a series of papers solving a number of outstanding questions posed by von Neumann and Murray.

Connes' second major work was his recent proof of a version of the Atiyah-Singer theorem, a generalization of the fundamental theorem of calculus that unites the fields of topology and analysis. Connes used what are called C* algebras to prove a version of this theorem for certain infinite surfaces.—*Gina Kolata*

Washington Set to Act on Heptachlor in Milk

The federal government is on the brink of lowering the permissible limit of heptachlor, a carcinogenic pesticide, in milk. The action stems from intensified concern that infants and children in Hawaii have been exposed to hazardous amounts of heptachlor-contaminated milk.

The concern first arose last spring, when officials in Hawaii first revealed the pesticide contamination (*Science*, 9 July, p. 137). State and federal officials asserted then that no adverse health effects would result because the period of heavy contamination was brief, perhaps only 6 months or so. Since then, the Environmental Protection Agency (EPA) has unearthed frozen Hawaiian milk samples from a federal laboratory, dating from April 1981. Tests at two other laboratories found the samples to be contaminated with heptachlor well above